

Final Report
Incidental Harassment Authorization
June 28, 2015 – June 27, 2016
Issued to the City of San Diego for
La Jolla California Children's Pool Life Guard Station
Construction and Harbor Seal Monitoring

Submitted to
Jolie Harrison, Division Chief
Permits and Conservation Division
NOAA Fisheries, Office of Protected Resources
1315 East-West Hwy
Silver Spring, MD 20910

January 26, 2017

By

Doyle A. Hanan
and
Antonette Gutierrez

Hanan & Associates, Inc.

Executive Summary

In 2012, Hanan & Associates, Inc. (H&A) was contracted by the City of San Diego (City) to help obtain Incidental Harassment Authorization (IHA) from National Oceanic and Atmospheric Administration (NOAA) Fisheries for pinnipeds in conjunction with demolishing the existing lifeguard station at Children's Pool (CP), La Jolla, California and building a new station on the existing site. Because the demolition and construction activities during 2013 were subject to delays and construction could not be completed by December 15, 2013, the City applied for and received a second IHA issuance (2014-15) and because of similar delays during 2014-15, applied for and received third IHA for construction during 2015-16. The first IHA was issued June 28, 2013, the second on June 28, 2014, and the third on June 25, 2015. Each IHA included three pinniped species: Pacific harbor seals, California sea lions, and northern elephant seals. The City applied for Level B harassment incidental to demolition and construction activities for the new life guard station. Required mitigation incorporated monitoring marine mammal presence, demolition and construction sounds, and any incidental harassment of Pacific harbor seals, California sea lions, or northern elephant seals near the construction site. H&A monitored at seven locations outside but immediately adjacent to the construction site. During the second construction season (2014-15) a sidewalk ramp which passes through the construction site to the stairs for South Casa Beach was worked on for public safety and completed during pupping season on January 15, 2015 (public access required by the California Coastal Commission). This past season 2015-2016, construction did not halt for pupping season as stipulated in the IHA. This was reported by H&A to the City and to NOAA Fisheries. Monitoring continued on a daily basis through February 12, 2016 and then because of funding issues H&A switched to monitoring on random days once per week until April 18, 2016, when the city posted a stop work order at the site and work did stop. Final inspections had not been performed and the occupancy permit had not been issued as of April 18, 2016. The City had the construction contractor resume final construction steps commencing June 1, 2016, and construction was completed June 29, 2016, and the City is using the facility.

For the third construction season, 2015-16, we monitored on 199 days (including monitoring construction during pupping season December 15 to April 18, 2016 and 25 days during June 1 to August 25, 2016) compared to 116 days in 2014-15, and 116 days in 2013. There were no observations of Level A takes during any of the three years of construction intervals. There has been no indication of site abandonment especially considering a peak pup count of 48 pups and total of about 54 successful births during 2016, the large number (60+) of pups counted at CP March 13, 2015, and a total of 60+ born during 2013.

Table of Contents

Introduction	5
Figure 1. Original Lifeguard Station from beach level at Children's Pool, La Jolla, CA.....	5
Figure 2. New CP Life Guard Station.	6
Species of Concern	7
Need for Incidental Harassment Authority	8
Figure 3. Excavator removing debris from beach level and over visual/acoustic barrier during first year.	8
Mitigation and Monitoring Measures	8
Figure 4. Children's Pool Beach closure sign installed by the City of San Diego on December 15, 2014 and 2015.	9
Required mitigation measures from the 2013, 2014, and 2015 IHAs and how addressed:	9
Figure 5. Children's Pool visitors viewing seals from behind the rope during the 2013-2014 pupping season construction moratorium.	10
Figures 6. Above: building visual/acoustic barrier as seen from monitoring location: Top of Stairs (at juncture of tan and gray walls) next to construction site and old station; below: barriers in place during construction	11
Results of Monitoring Activities	15
Figure 7. Harbor seal counts during 2013, 2014-15, and 2015-16 at Children's Pool, La Jolla, CA. Counts total Children's Pool Beach, South Casa Beach, Seal Rock, and the reef area outside the CP break wall. Trend line (Red) is third degree polynomial.	16
Hourly Pinniped Counts.....	16
Figure 8. Children's Pool Harbor Seal Peak Daily Counts (gray) with trend line and running mean of counts (green) during three tide cycles which stays above the lower 95% confidence level until March when observations dropped from daily to weekly; Predicted long term haul out curve with upper and lower 95% Confidence Levels and a solid vertical line (blue) for start (6/1/2016) of construction.	18
Hourly Sound Recordings	19
Table 1. Three-year comparison of total seals, people, and sound recordings. Also comparison of sound recording means and ranges.	19
Figure 9. Monitoring location Break Wall 1 and sound meter on break wall railing.	20
Table 2. Mean sound (dB re 20 μ Pa) and mean distance from source (in meters) by type of equipment and monitoring location.....	21
Table 2. Continued: Casa beach is at west end of the construction site near the reef. W Gull is on the sea wall monitoring site (S5) and W Seal (S6) is also on the sea wall, the farthest monitoring location from the construction site.	22
Observed Harassments	23
Table 3. Summary of Children's Pool Alerts (seals raise heads and/or move less than one meter) and Flushes (seals move more than one meter and/or go into water).	23

Figure 10. Comparison of 2013-14, 2014-15, and 2015-16 harbor seal counts by time of day. Note early morning declining trend followed by afternoon increasing trend..... 24

Discussion..... 25

Literature Cited 25

Figure 12. Location of monitoring stations (Top of Stairs, Bottom of Stairs, Middle Rope, Casa, Break Wall 1, and Break Wall 2) at Children’s Pool, La Jolla, CA. 27

Figure 13. Monitoring location: Casa early and late 2015 (above Casa Beach and next to construction site). 27

Figure 14. View from monitoring location: Break Wall 2. Note Break Wall 1 located this side of second man on wall (tan shirt) and note yellow rope barrier on beach at white sign with four people standing on beach. 28

Figure 15. Moving visual/acoustic barriers to lower level of construction site after removal of old building. 29

Appendix I. 2014 Monitoring plan for the La Jolla Children’s Pool Lifeguard Station demolition and construction:..... 30

Appendix II. Daily Monitoring Sheet to be maintained while observing construction, recording sound, and visitors. 33

Appendix III. Daily Observation Sheet for recording all observed harassments of marine mammals at Children’s Pool 35

Introduction

The City of San Diego (City) first applied for and was issued Level B Incidental Harassment Authorization (IHA) by NOAA Fisheries on June 28, 2013 expiring June 27, 2014, a second IHA for June 28, 2014 to June 27, 2015, and a third IHA for June 28, 2015 to June 27, 2016. These IHAs were for demolition of the existing structure and construction of a new lifeguard station immediately adjacent to and above Children's Pool (CP), at 827 ½ Coast Boulevard, La Jolla, California (32° 50'50.02"N 117°16'42.8"W; Figures 1, and 2).



Figure 1. Original Lifeguard Station from beach level at Children's Pool, La Jolla, CA.

The new station is a three-story, partially sub terrain - 1,877 square-foot building with beach-access-level public restrooms and showers, lifeguard lockers, and sewage pump room; a second level containing two work stations, observation room, kitchenette, restroom, and first aid station; and a third 'observation' level including a single occupancy observation space, radio closet, and exterior catwalk (Figure 2).



Figure 2. New CP Life Guard Station.

Conditions of the IHAs required: monitoring of pinnipeds, sound, and people present at the site; environmental conditions; working hours; visual/sound barriers; a review of seal hauling behavior following two months of construction (to address the potential of site abandonment); analysis of harbor seal abundance relative to tide cycles; a construction work closure during harbor seal pupping season (December 15 through June 1); a draft report 90 days following end of construction; a final report following NOAA Fisheries review of the draft, and additional conditions stated in the 2013, 2014, and 2015 IHAs (See Mitigation Measures below).



Because of numerous construction delays including: nesting migratory birds (western seagulls, *Larus occidentalis*) at the construction site (see left); unexpected underground structures; and other unforeseen construction delays; each year the project was not finished before the pupping season. As with the first and second years of construction, to allow for completion of the new lifeguard station, the City

applied for an additional IHA to cover the project after expiration of the previous IHAs. As required by NOAA Fisheries, this is a report of monitoring and observations May 27, 2015 through April 18, 2016 and June 1, 2016 through June 29, 2016, the end of the 2015-16 IHA time period.

Species of Concern

Pacific harbor seals, *Phoca vitulina richardii*, haul out on beaches and rocks below and near the building site. Seal abundance has increased since 1979 and seals give birth on these beaches during December through May. Several studies have identified seal behavior and estimated seal numbers including daily hauling patterns and seasonal area use (Yochem and Stewart 1998; Hanan 2004, Hanan & Associates 2011, Hanan and Hanan 2014, Hanan 2015). In this report we focus on the last construction season, we present our CP observations documenting harbor seals hauled out during June 3, 2013 through June 29, 2016 and associated construction observations, sound recordings, documentation of IHA authorized seal harassment, and documentation of all other observed seal harassment at this site.

California sea lions, *Zalophus californianus*, and northern elephant seals, *Mirounga angustirostris*, are also observed on CP beach and nearby areas (Yochem and Stewart, 1998; Hanan 2004, Hanan & Associates 2011, Hanan and Hanan 2014, Hanan 2015) but in small numbers (less than 5 at any one time). The City requested that these two species be included in the IHA application for 2013, 2014, and 2015 because these two species are known to haul out occasionally at CP and were documented at CP during 2013-14, 2014-15, and 2015-16 monitoring activities.



Need for Incidental Harassment Authority

Because of the proposed demolition of the old station and construction of a new station above the CP beach, it was anticipated that these activities would likely incidentally harass harbor seals, elephant seals, and sea lions at CP but not cause serious injury. The harassment was anticipated to be both visual and acoustic (Figure 3 and 15); although, the sound levels reaching the pinnipeds was not anticipated to exceed 90 dB re 20 μ Pa; therefore, Level B IHA was sought and issued by NOAA Fisheries.



Figure 3. Excavator removing debris from beach level and over visual/acoustic barrier during first year.

Note seals and people on CP beach.

Mitigation and Monitoring Measures

As an additional protective management measure for the seals at CP, the City of San Diego closed (with California Coastal Commission approval) CP Beach to the public during pupping season, December 15, 2015 through May 15, 2016.

This measure has been effective

in keeping most people off the beach during that time period, although we did record instances of violations and noted the likelihood of people on the beach at night based on footprints observed in early morning.

A court decision recently found this closure to be illegal and the ruling is being reviewed in court.



Figure 4.
Children's Pool
Beach closure
sign installed by
the City of San
Diego on
December 15,
2014 and 2015.

Required
mitigation
measures from
the 2013, 2014,
and 2015 IHAs
and how
addressed:

- a) The
construction
activities, shall be
prohibited during
the Pacific harbor
seal pupping

season at Children's Pool (December 15th to May 15th) and for an additional two weeks to accommodate lactation and weaning of late season pups. Thus, construction activities shall be prohibited from December 15th to June 1st.

-Demolition/construction at CP was prohibited by the IHA starting December 15, 2015; however, to complete the project during 2015-16, construction continued after December 15, 2015 until April 18, 2016. The construction activities and related seal disturbances were documented and reported to NOAA Fisheries and the City by H&A with frequent updates, photographs, and videos as required in the IHA.



Figure 5. Children’s Pool visitors viewing seals from behind the rope during the 2013-2014 pupping season construction moratorium.

- b) The construction activities shall be scheduled Monday through Friday; however they may continue on weekends to ensure completion of the project in 2015. To the maximum extent practicable the demolition and construction activities shall be conducted from approximately 8:30 a.m. to 3:30 p.m. (i.e. daylight hours), during the daily period of lowest haul-out occurrence; however, demolition and construction activities may be extended from 7:00 a.m. to 7:00 p.m. to help assure that the project is completed during the 2015 demolition and construction window. Harbor seals typically have the highest daily or hourly haul-out period during the afternoon from 3:00 pm to 6:00 p.m. (Hanan 1996).

-construction workers usually arrived at CP prior to 07:00 hours with a mean construction start time of 07:02; the latest finish time for construction was 19:30 hours. During 2013-14 and 2014-15, all construction activities were conducted on weekdays. During 2015-16 construction was conducted week days, two weekends, and over the Thanksgiving holiday.

- c) A visual and acoustic barrier will be erected and maintained for the duration of the project to shield demolition and construction activities from beach view. The temporary barrier shall consist of 1.3 to 1.9 centimeter (1/2 to 3/4 inch) plywood constructed 1.8 to 2.4 meters (6 to 8 feet) high depending on the location. The barriers

will be placed at the site with input from NOAA Fisheries Western Regional Office personnel so that they will hide as advantageously as possible the demolition and construction activities that may be seen by pinnipeds.

-Sheets of 4 ft. by 8 ft. by 5/8th inch plywood framed with wooden two by fours were used to create the visual/sound barrier. The sheets of plywood were stood upright (8 feet tall) and held up with two wooden two by fours hinged to the top of the frame, so they could be collapsed and be moved depending on equipment location and need for access by equipment (See figures 6, 12, 14, and 15). When used, these were quite effective. We came to this conclusion subjectively as the seals did not appear to alert to the same sounds that did alert them without barriers. We assumed this occurred because there was no visual cue with which to associate the sound. Also, the barriers likely dampened sound levels but we did not comparatively record sound levels. Barriers were not used from December 15, 2015 through April 29, 2016 during construction carried on in the 2015-16 pupping period.



Figures 6. Above: building visual/acoustic barrier as



seen from monitoring location: Top of Stairs (at juncture of tan and gray walls) next to construction site and old station; below: barriers in place during construction

A NOAA Fisheries -qualified, trained Protected Species Observer (PSO) shall be used to detect, document, and minimize potential impacts from demolition and construction activities. The PSO shall attend the project site 30 minutes prior until 30 minute after demolition and construction activities cease each day throughout the demolition and construction window. The PSO shall be approved by NOAA Fisheries

prior to construction activities. The PSO shall search for marine mammals using binoculars and/or the naked eye within the Level B (behavioral) harassment zones which may vary upon the type of in-air sound being produced by the demolition and construction activities. The PSO will observe from a station along the breakwater wall as well as the base of the cliff below the construction area. If inclement weather limits visibility within the area of affect, the PSO will perform visual scans to the extent conditions allow. The PSO

will not have to monitor on days or portions of days when there will be little chance of disturbance from demolition and construction activities (e.g., nothing visual, sound levels at source less than 90 dB re 20 µPa. or all work activities inside the building).

-Three Hanan & Associates, Inc. personnel: Antonette Gutierrez, Rachel Tuck, and Doyle Hanan performed all 2015-16 observations by eye and with binoculars. PSO resumes were sent to NOAA Fisheries for approval; additionally, both PSOs were specifically trained at CP by Dr. Hanan for this project. A monitoring plan and observation sheets were developed and used for recording sound and observations (see Appendices I, II, III). This plan and observation sheets included hourly collection and count paradigms for: environmental data, recording locations relative to the buffer zones (Figure 12), sound recording, all marine mammal observations, and public presence documentation. PSO's were available and present as required in the IHA for all construction days except over Thanksgiving weekend, 2015, when H&A was told that there would be no construction; however, there was construction activities on Thursday and Friday with no official PSO on site (November 24 and 25, 2015, as observed and photographed by citizens and one of the PSO observers incidentally present for personal recreation). This was reported to the City and to NOAA Fisheries by H&A and concerned citizens.

- d) The PSO shall visually scan the action area for the presence of marine mammals at least 30 minutes prior to the start-up and continuously throughout periods of in-air noise-generating activities. Visual scans shall continue for at least 30 minutes after each noise-generating episode has ceased.

-This mitigation was included in the monitoring plan and adhered to by PSO's (see Appendices I, II, III below regarding daily start and end of construction, as well as, sound recorded by construction equipment type [Table 2]).

- e) The PSO shall use visual digital recordings and photographs to document individuals and behavioral response to the construction activities. The PSO shall make hourly counts of the number of pinnipeds present and record sound or visual events that result in behavioral responses and changes, whether during demolition and construction activities or from public stimuli. During these events, pictures and videos will be taken when possible to document individuals and behavioral responses.

-Please see d) above regarding the monitoring plan, photos, and videos, which was followed. During the first year H&A accessed the WAN camera via computer to document seal hauling behavior (especially at night) to obtain peak daily counts until the camera was removed (approximately August 1, 2013; it was mounted on the roof of the old lifeguard station which was demolished Figure 1 above). The camera has not been redeployed.

- f) A PSO shall record the following information when a marine mammal is sighted:
 - i) Species group size, age/size/sex, categories (if determinable) behavior when first sighted and after initial sighting, heading (if consistent), distribution, bearing and distance relative to the sound source(s), group cohesiveness, duration of presence, apparent reaction to the demolition and construction activities (e.g., none, avoidance, approach, etc.), direction and speed of travel, duration of presence, and if there are other causes of potential disturbance occurring;
 - ii) Date, time, location, activity of demolition and construction operations, monitoring and mitigation measures implemented (or not implement d), tidal stage, weather conditions, Beaufort sea state, wind speed, visibility and sun glare and
 - iii) The data listed under Condition 6(g) (ii) shall also be recorded at the start and end of each observation watch and during a watch whenever there is a change in one or more variables.

- Please see d) above for monitoring plan and recordings and see Results of Monitoring Activities below.

- g) A PSO shall also record the time of arrival and departure on site, commencement and cessation of in-air noise demolition and commencement activities, and presence of humans on the beach. Whenever possible, the PSO should determine as to whether or not the harassment or pinnipeds is attributable to the construction activities and/or the presence of the public on the beach and around the Children's Pool area. A PSO shall record the number of people on the beach and surrounding area as well as their location relative to the animals.

-Please see d) above regarding the monitoring plan, which includes each of these mitigations; also please see Observed Harassments below.

- h) Buffer zones shall be established (i.e., where sound pressure levels [SPLs] are at or above 90 decibels (dB) re 20 μ Pa for harbor seals and/or at or above 100 dB re 20 μ Pa for all pinniped species except harbor seals [for in-air noise]) around the demolition and construction activities so that in-air sound associated with the construction activities no longer exceed levels that are potentially harmful to marine mammals.

-The City installed a rope across CP beach (near the middle of the beach to inform the public of a reasonable distance away from areas where seals tend to haul out and rest); it defined approximately the 90 dB re 20 μ Pa buffer zone for construction sounds see Figure 8, "Middle Rope" location, which is approximately 15 meters from the nearest construction position). The 100 dB re 20 μ Pa position was above the beach, behind a fence and therefore impracticable as a buffer zone since none of the pinnipeds had access behind this fenced area of the beach and cliff. PSOs weren't allowed inside the construction area while equipment was operating but were fairly close at monitoring sites: "Top of Stairs" and "Casa", which gave sound levels as close to the source as were allowed. Buffer zones: H&A set up three stations "Break Wall 1", "Middle Rope", and "Bottom of Stairs", which were estimated to be the distance at which 110 dB re 20 μ Pa at the source would attenuate to 90 dB re 20 μ Pa. The three monitoring sites are about 15 meters from the center construction position but the equipment moved about within the construction area, so we could measure sound at Top of Stairs, Casa, and sound at the four other monitoring sites to get an estimate of sound source and attenuation. The equipment moved around inside the fencing as they worked but it is a small area and our measurements give good ranges of each piece of equipment. One problem with trying to get exact measurements to the construction equipment and getting a sound measurement is that the public was often very close to us as we took the measurements (often we were standing in a crowd of visitors) and sounds from the public usually contributed to the peak recorded sounds during the approximate two-minute period of sound monitoring. Additionally, there was often more than one piece of equipment in operation at the same time; therefore sound measurements were often a combination from several sources.

- i) In-air noise monitoring and reporting shall be performed during the demolition and construction activities at and near the Children's Pool Lifeguard Station. The PSO shall have access to handheld digital sound level measuring devices. The study will characterize in-air sound levels in the area related to (e.g. construction equipment including backhoe, dump truck, cement truck, air compressor, electric screw guns, jackhammer, concrete saw, chop saw, and hand tools) and in the absence (as a background and baseline [i.e., ambient] for the project) of all construction activities, and confirm or identify harassment isopleths for all types of construction activities conducted. To better assess in-air sound propagation and source levels, the distance from the sound meter to each sound-producing activity when conducting sound measurements shall be noted. Monitoring shall be conducted three to five days prior to demolition and construction activities and shall include hourly systematic counts of pinnipeds using the beach, Seal Rock, and associated reef areas to provide

baseline data regarding recent haul-out behavior and patterns as well as background noise levels near the time and demolition and construction activities. Monitoring shall continue for 60 days following the end of demolition and construction activities. Following construction, the City of San Diego will have a program where a PSO that will randomly select a day per week to visit the Children's Pool.

-Please refer to the monitoring plan (Appendices I, II, III) and also Hourly Sound Recordings below describing the sound meter and its use. Note, during 2014-15, we added new data to the data sheet for estimated distance to each sound source when discernable, those data are presented in results and Table 2. H&A began 2015-16 observations and monitoring on May 27, 2015 in anticipation of construction starting June 1, 2015; nesting western seagulls did not prevent start of construction June 1, 2015. We monitored daily through December 15, 2015. Because construction continued beyond December 15, 2015, despite the construction moratorium specified in the IHA during the pupping season (December 15, 2015 – June 1, 2016), H&A continued the daily construction monitoring through February 16, 2016 and then switched to one random day per week until April 18, 2016, when funding for monitoring was exhausted. The City issued a stop work order for construction on April 20, 2016.

- j) After the first two months of monitoring during demolition and construction activities, the City of San Diego shall take the mean number of observed harbor seals at the Children's Pool in a 24-hour period across the two months and compare it to the mean of the lower 95% confidence interval. If the observed mean is lower, the City of San Diego shall shut-down demolition and construction activities and work with NOAA Fisheries and other harbor seal experts (e.g., Mr. Mark Lowry, Dr. Sarah Allen, Dr. Pamela Yochem, and/or Dr. Brent Stewart) to develop and implement a revised mitigation plan to further reduce the number of takes and potential impacts. Once a week every week thereafter, the City of San Diego shall take the same mean of observed harbor seals across the previous three tide cycles (a tide cycle is approximately 2 weeks) and compare it to the lower 95% confidence interval for the same time period. If the observed mean is lower, the City of San Diego shall shut-down and take the action described above. If abandonment of the site is likely, monitoring shall be expanded away from the Children's Pool to determine if animals have been temporarily displaced to haul-out sites in the southern California area (e.g. Torrey Pines, Point Loma, etc.).

- After the first two months of monitoring in 2015, H&A evaluated mean and peak counts of harbor seals at CP relative to historic and projected abundance estimates (Figure 8) and presented the findings to NOAA Fisheries. Based on those data, we determined that harbor seal numbers were above the lower 95% confidence interval relative to the historic long term mean and therefore, site abandonment was not likely.

- regarding weekly mean comparisons to the previous three tide cycles please see Figure 8 which shows a running six week mean for CP. This mean is above the lower 95% for the predicted CP mean based on previous CP studies throughout the 2015-16 construction period until approximately April 9, 2016. At that date H&A was monitoring a random day once per week, construction was still occurring but also randomly. Concerned citizens reported to H&A and NOAA Fisheries when they observed construction activities, additionally H&A reported to NOAA Fisheries and the City of these activities. The City posted a stop work order on April 20, 2016 and we did not see or hear of any more construction until June 1, 2016, after the pupping season.

Results of Monitoring Activities

In anticipation of the 2015 IHA issuance and start of demolition/construction activities, H&A monitoring began May 27, 2015. During the 2015-16 construction period, H&A adhered to the monitoring plan as approved by the City of San Diego and NOAA Fisheries with hourly counts of seals and people, and sound monitoring at seven locations (Figure 8); a seventh monitoring site was added on South Casa beach (Photo to right) during 2014 to monitor sound towards the reef area where seals haul out during low tides. We counted a total of 112,332 harbor seals during hourly counts, because the seals tend to stay on the beach for long periods of time (longer than our counting interval), there was a significant number seals counted during multiple monitoring periods. The total counted for the 2015-16 construction season was much higher



than previous seasons (Table 1) because of the extended construction period and our extended monitoring through April 18, 2016. We also counted a total of 38,197 people at 3 locations surrounding the seals at CP (on the street side walk way above CP, at the rope on CP beach, and on the Break wall, see Figure 12) and because of hourly counts, many people were also counted multiple times. We recorded environmental conditions hourly with: mean Beaufort wind scale of 2.1; mean wind speed 3.5 knots, mean visual distance 30.5 miles, and mean sky cover 52%. Demolition/construction commenced June 1, 2015 and stopped when a stop-work order was posted at the life guard station on April 20, 2016. H&A monitored daily until February 12, 2016, followed by once weekly until April 18, 2016.

To complete construction of the station and take advantage of the existing 2015-16 IHA, which was to expire June 27, 2016, the City ask the construction contractor resume construction June 1, 2016. However because construction material were not available, work did not start until 7 AM June 6th. Because there were no sound/visual barriers, H&A, informed the construction contractor to stop work and notified the City and NOAA Fisheries of this action. On June 10th tarps were placed over the station railings and movable plywood barriers, as well as, other barriers were built and used to shield the work and noise from the seals. Construction then continued daily until the project finished at 11:30 AM June 29, 2016.

H&A did not note any unanticipated problems with the monitoring plan and our execution of it except on November 24-24, 2015 when the construction company proceeded with construction on days when it had indicated construction would not occur, and during December 15, 2015 – April 18, 2016 when construction proceeded well into the moratorium on construction during the pupping season (December 15, 2015 – June 1, 2016) as specified in the IHA.

This 2015-16 construction season including June 2016, we recorded 1,417 lines of spreadsheet data (representing at least 1,417 hours [199 days] of observation) including the hourly counts, sound monitoring, counts of public visitors, and recording associated environmental data. We recorded 1,080 observations of seal alerts and flushes (Table 3). In addition to Pacific harbor seals, we recorded 134 sightings of cetaceans (approximately 88 common bottlenose dolphins; one sighting of several hundred common dolphin (species not identified); 28 grey whales; 4 humpback whales breaching; 83 California sea lions on seal rock; 71 California sea lions on the CP beach; 5 California sea lions on South Casa Beach; 1 California sea lion on the offshore reef off South Casa Beach; and 26 days with a juvenile

northern elephant seals on CP beach. H&A observed several dead harbor seal pups at CP and called NOAA Fisheries and Sea World Marine Mammal Rescue for each one.

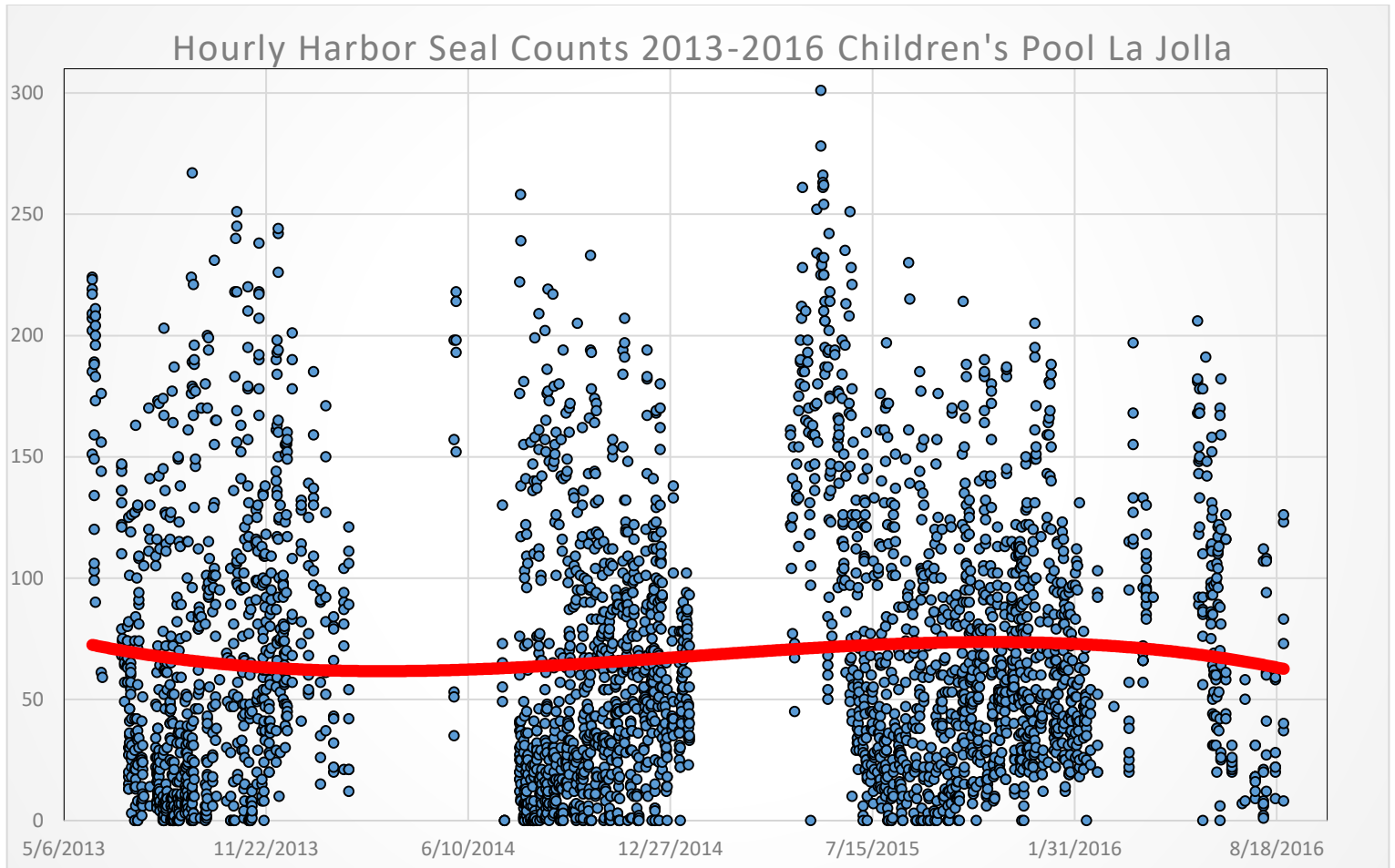


Figure 7. Harbor seal counts during 2013, 2014-15, and 2015-16 at Children’s Pool, La Jolla, CA. Counts total Children’s Pool Beach, South Casa Beach, Seal Rock, and the reef area outside the CP break wall. Trend line (Red) is third degree polynomial.

Hourly Pinniped Counts

Counts and mean trends of seals observed during the periods authorized by the 2015 IHA are shown in Figure 8 fit with 3rd degree polynomial trend line; predicted harbor seals hauling out by day as projected from previous studies at CP with upper and lower 95% confidence intervals. We note that CP Total and Area Total showed declining trends prior to start of construction. We observed that public interactions seemed to be increasing during that time and also noted that there were large numbers of seals hauling out at night and into early morning hours (Figure 10). We moved our daily monitoring start time to just before dawn rather than just before construction, frequently an hour or more before start of construction. During this time period, our peak count for monitoring was often during the first or second count of the day, before people started arriving at CP. Because of human disturbance at CP, daily peak counts

are likely better indicators of seals utilizing the area and the trend lines fit to those peak counts better indicators seal abundance when comparing to other less disturbed seal hauling sites.



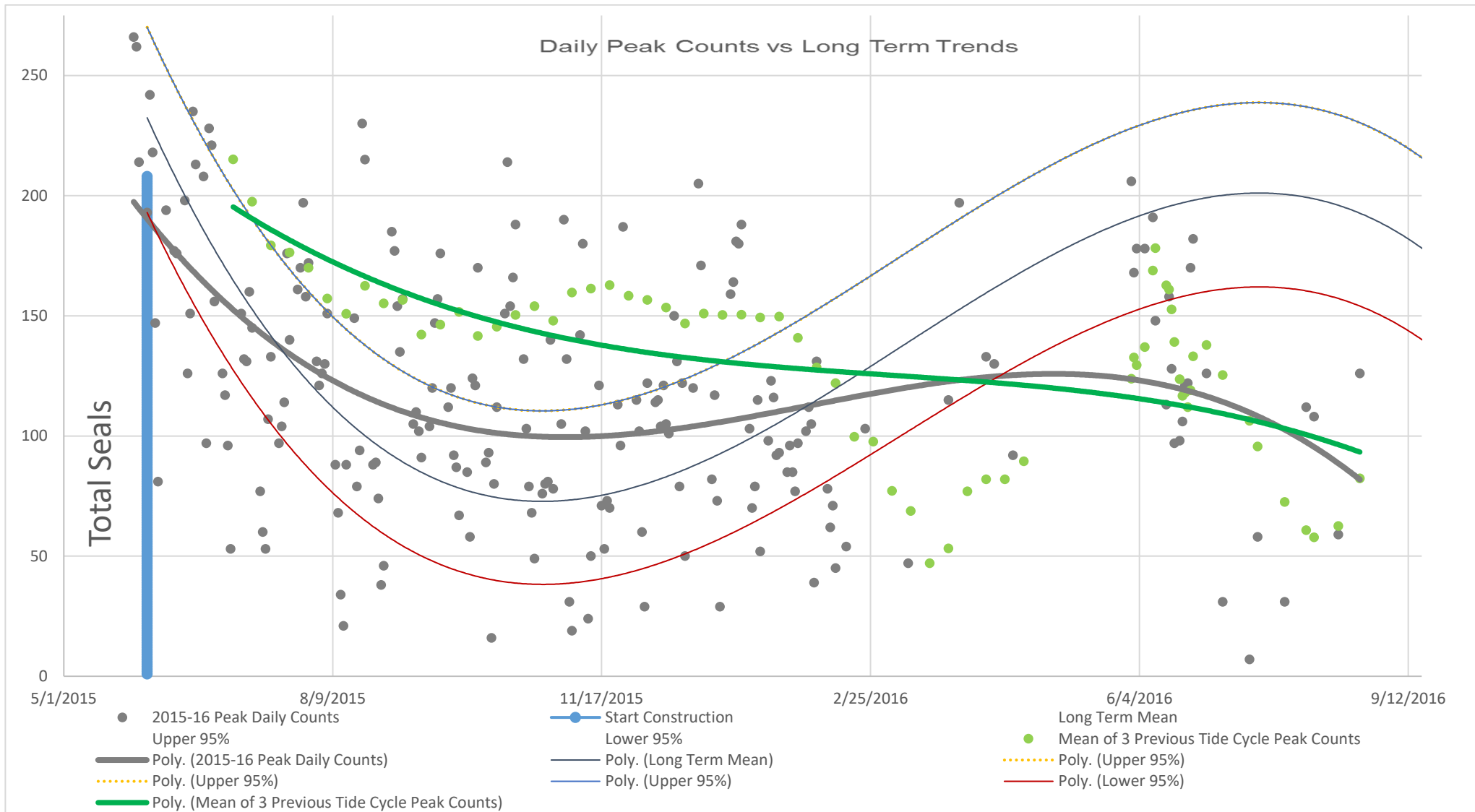


Figure 8. Children's Pool Harbor Seal Peak Daily Counts (gray) with trend line and running mean of counts (green) during three tide cycles which stays above the lower 95% confidence level until March when observations dropped from daily to weekly; Predicted long term haul out curve with upper and lower 95% Confidence Levels and a solid vertical line (blue) for start (6/1/2016) of construction.

Hourly Sound Recordings

We recorded sound using an Extech® Instruments (model HD600) digital, handheld sound level meter recording in decibels. We recorded the maximum sound within a two-minute interval, fast (125 ms) response time, A-weighting, within a range of 30 - 130 dB as recommended by the manufacturer and distributor. The meter was calibrated periodically using a Reed SC-05 sound level calibrator. When seals were above or very near the rope at the center of CP beach, we often did not go onto the beach to take recordings in order to avoid possibly flushing the seals. However, if members of public had already approached the seals at the rope, we proceeded with the recordings at all stations. For safety, no measurements were taken at Break Wall 1 or 2 when waves were breaking over the seawall. During 2015-16, mean ambient sound **with no construction** for all seven monitoring stations was 68.7 dB re 20 µPa with a range of 52.3 to 90.5 dB re 20 µPa. Mean average sound **with construction** for all seven monitoring stations was 71.1 dB re 20 µPa with a range of 52.8 to 105.0 dB re 20 µPa. This maximum recording was taken next to the construction fencing at CPT (Top of Stairs) and was a recording of steel materials being unloaded (dropped) by a fork lift about 1 meter away from the recorder. There was no alert or flush of the 12 seals hauled out on the rocks below the sea wall (about 60 meters away, Figure 11). Please see Table 2 for summary results of recorded sound levels by individual type of equipment.

Table 1. Three-year comparison of total seals, people, and sound recordings. Also comparison of sound recording means and ranges.

Sound (dB re 20 µPa)	2013-14	2014-15	June 1 2015 - April 18 2016	June 1 2016 – Aug 25 2016
Monitoring Days	109	116	209	25
Total Seals	60,631	63,598	98,247	12,566
Total People	26,037	27,844	32,193	7,654
Total Sound Recordings	4,769	4,458	4,341	245
Mean No Construction	69.2	68.9	68.7	68.6
Range	55.6 to 93.7	51.5 to 97.2	52.3 to 90.5	59.8 to 82.9
Mean With Construction	70.3	71.3	71.1	70.4
Range	50.7 to 103.1	49.4 to 102.7	52.8 to 105.0	59.5 to 88.2



Figure 9. Monitoring location Break Wall 1 and sound meter on break wall railing.

Table 2. Mean sound (dB re 20 µPa) and mean distance from source (in meters) by type of equipment and monitoring location.

Top of Stairs (CPT) and Casa (Figures 10 and 11) are two locations closest to construction just outside safety fencing. Middle Rope (CPM) location is about midway across Children's Pool beach and next to the City installed rope barrier. CPB is at the south end of CP beach at the bottom of the access stairs.

Location	CPM			CPB			CPT			Casa			Casa Bch			W Gull			W Seal		
Ave dB re 20 µPa & Distance (m)	n	dB	dist	n	dB	dist	n	dB	dist	n	dB	dist	n	dB	dist	n	dB	dist	n	dB	dist
Air Compressor							3	72.6	3												
Backhoe	1	61.6	45	3	68.1		1	66.5	10	1	74.1	2	2	71.4	20	1	69.8		1	73.1	
Bobcat	5	63.6	7	3	69.2	10	7	72.2	9.3	7	80.8	5.1	2	75.2	10	1	72.1	2	2	75.1	26
Bobcat with backhoe	2	62.5	20	2	68.4	3	4	67.7	15.5	2	71.0	15.0	2	72.8	17.5	1	68.7	30	6	72	
Bobcat with skiploader	6	64.6	27	5	69.9	23	2	77.6	5.5	6	76.2	6.8	2	77.2	5.5	5	69.5	26.0	2	71.4	
Broom	1	64.2	20	3	64.8		1	69.9	5	1	69.6	1				1	67.5	25			
Cement Pump	6	67.8		1	81.2	1	3	70.1	2.6	5	81	6.8	1	76.4	10	6	73		6	71.7	
Cement Truck	5	71	3.8	1	73.2	7	8	80.4	3.3	9	75.6	12.8	1	71.2		5	69		1	70.4	
Chain saw	1	70.2	20							1	77.3	20.0									
Compactor	2	60.8		2	59.4		2	68.7		4	74.0	6.3	1	89	2	2	70.05	16	1	73	
Crane	3	69.9	2.6	3	64.7		2	81.2	3.5	3	66.9		1	63.1		1	70.2	8	4	68.9	
Delivery Truck							1	69.3	1	1	69.1										
Drill	4	64.8	11	2	67.9	10	13	74.8	5.6	7	74.4	7.4	1	74.9	10	3	69.8	11.7	2	72.2	
Dump Truck	1	69.1		1	69.8		2	78.4	15	2	70.6					1	74.1				
Excavator	33	65.6		33	67.1		34	76		2	83.1	5.5				34	72.1		34	74.1	
Forklift	5	67.4	6	18	67.4		6	76	11	9	77.1	6	3	74.6	2	3	76.3		16	73.8	
Generator				1	89.5		1	71		1	77		1	74.1							
Generator Powered Jack Hammer	3	69.1		3	69.7		3	83.9		3	71.7					3	74		3	76.1	
Grinder	2	61.7		2	66.3		2	64		2	71.7					2	73.6		2	72.7	
Hammer	3	66.1		18	66.3		7	74.9	6.7	5	80.1	10.6	1	70.2	25	2	73	10	12	71.9	
Hand Tools	35	64.9		41	68.2	20	43	67.3		40	70.3	19.7	18	70.7		1	74.2	20	41	70.3	
Impact Driver	3	65.8		3	75.3		3	71.8		3	73.1					3	75.8		2	77.1	

Table 2. Continued: Casa beach is at west end of the construction site near the reef. W Gull is on the sea wall monitoring site (S5) and W Seal (S6) is also on the sea wall, the farthest monitoring location from the construction site.

Location	CPM			CPB			CPT			Casa			Casa Bch			W Gull			W Seal		
Ave dB re 20 μ Pa & Distance (m)	n	dB	dist	n	dB	dist	n	dB	dist	n	dB	dist	n	dB	dist	n	dB	dist	n	dB	dist
Jackhammer	7	72.7	9	6	69	14	9	79.7	7.7	11	84.1	10.4	3	88.2	34.9	7	71.6	16.4	4	69.7	
Jackhammer on Bobcat	3	65.5	32.7	5	65.9	35	8	79.05	14.1	5	83.1	15.4	2	71.4	17.5	4	71.7	28.8			
Jackhammer on Excavator	4	74.1	37.5	1	62.2	45	3	85.8	18.3	1	87.4	15.0	1	76.5	15.0	1	72.8	30	3	72	
leaf blower				1	62.4		2	71.2	20	1	71.4	10									
Mini Excavator	4	68.2	32.5	3	66.6	28	6	65.5	26.7	6	73.9	9.2	5	76.2	9.8	3	72.6	23.3	4	72.5	63
Nail gun	1	65.7	10	1	72.3	10	1	80.8	5	1	75.3	10				1	69.6	10			
Rolling Attachment on Mini Exc										2	75.6	7.5	1	75.7	6.0						
Sand Blaster	5	76.0	17.5	5	69.5	25				1	80.2	10.0				5	90.8	31.6	1	75.9	52
Sander	1	61.2		1	68.6		1	69.6		1	91.9	5									
Saw, Circular	3	68.2	16	2	70.4	30	2	71.6	16	12	70.0	6.1				1	70.8	10			
Saw, Concrete	1	66.1	15	1	59.7	15	1	73.4	10	2	83.3	7.0	3	74.7	15.0	2	76.4	10	1	74.7	35
Saw, Hack	3	69		3	64		3	70.9		3	72.8					3	70.7		3	75.1	
Saw, Rebar	3	67.3	20	2	67.7	24	3	73.9	6.7	2	77	10	1	76.1	20	1	76.9	30	4	70.1	
Saw, Skill	5	66.7	15	4	65	16	6	75	7.5	5	73.5	9	1	70.9	15	5	67.8	17	1	73.4	
Sawzall	2	62.9	10	3	59.6		2	77.6	7.5							3	68.8		1	66.3	
Shovel	3	63		4	71.5		1	81.2	4	1	74.9	4				3	71.5		3	69.2	
Waves							3	83.4											4	72.6	2
Welder							3	68.2		1	64.5	2				3	69.1		3	71.7	1

Observed Harassments

H&A attempted to identify the causes and recorded all **observed** alerts and flushes and partitioned them into four categories in the database: 1. Biological alerts and flushes (*e.g.*, seals and sea lions disturbing seals, birds disturbing seals), 2. Public alerts and flushes (*e.g.*, people approaching close to or disturbing seals, loud voices or sounds, swimmers, cars, motorcycles, trucks not associated with construction, dogs, landscape equipment, kayakers/paddle boarders in the CP cove, aircraft, lifeguard activity, Sea World rescues, water sampling, portable restroom maintenance, or City workers maintaining the beach area and access stairs), 3. Construction alerts and flushes (*e.g.*, any visual or sound item related to construction), and 4. Could not Be Determined (occasionally all or some of the harbor seals on a hauling site will alert and/or flush into the water for no apparent reason other than a presumed kind of flock reaction for safety towards or into the water). Please see Table 3 for a summary of alerts and flushes.

Table 3. Summary of Children’s Pool Alerts (seals raise heads and/or move less than one meter) and Flushes (seals move more than one meter and/or go into water).

Count is number of disturbances observed for a category: Biological includes birds and pinnipeds; Construction includes anything directly related to construction at CP; Public includes people on the beach or in the water and disturbances and those caused by City workers not associated with the construction which were included with public disturbances (maintenance, water testing, life guards, etc.); CBD means could not be determined. Reaction is the seal’s response to disturbance (Alert or Flush plus both Alert&Flush). Total Seals is the sum of seals disturbed and mean is average number of seals disturbed by category.

Total harbor seal takes allowed by the IHA and caused by construction was 10,000; the sum of Alerts and Flushes observed and attributable to construction was 6,896 seals well below the allowable take.

Count	June 2015- June 2016 Cause	Reaction	Total Seals	Mean # Seals
261	Construction	Alert	5679	22
175	Construction	Flush	1217	7
0	Construction	Alert&Flush	0	0
310	Public	Alert	6678	22
290	Public	Flush	3788	13
3	Public	Alert&Flush	87	29
30	Biological	Alert	796	27
25	Biological	Flush	359	14
1	Biological	Alert&Flush	8	8
22	CBD	Alert	400	18
36	CBD	Flush	662	18
4	CBD	Alert&Flush	5	1

The trend lines in Figure 9 below shows a relationship which we noticed both before and during construction: that the number of seals tend to decline as the city starts to awaken and the day progresses; people start arriving at CP for various activities not always related to seal watching: joggers and walkers, traffic passing by, maintenance of facilities and landscaping, trash trucks, lifeguard activities, storm water sampling, seal photographers, and seal enthusiasts. The total number of seals then increases in the afternoon.

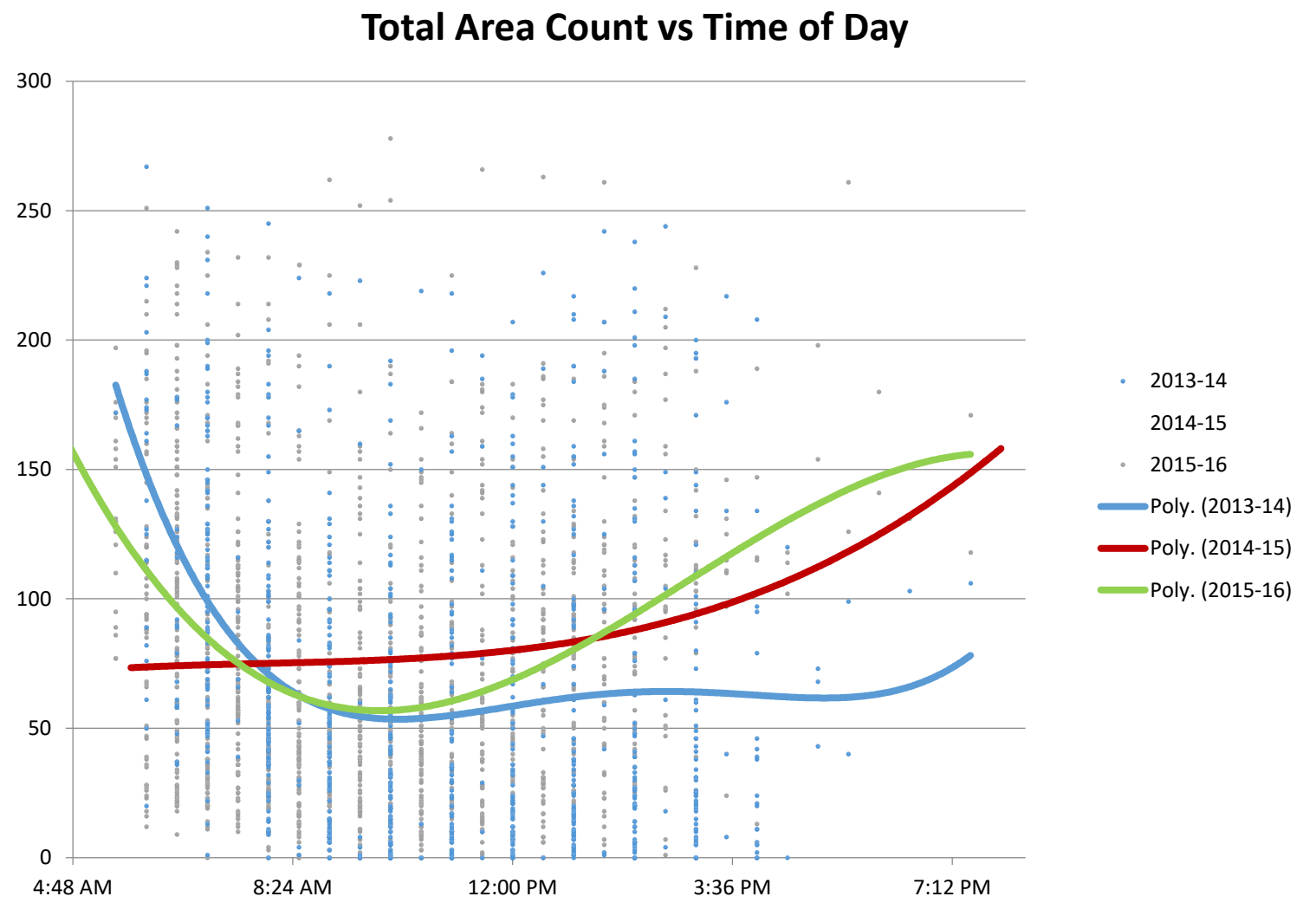


Figure 10. Comparison of 2013-14, 2014-15, and 2015-16 harbor seal counts by time of day. Note early morning declining trend followed by afternoon increasing trend.

Discussion

As expected, demolition and construction activities did cause alerts and flushes (Table 3) and as with the first and second years was about 1/3 of the total alerts and flushes observed at CP. Demolition/construction sound levels were similar to those predicted in the IHA application (Table 2). The loudest sound (recorded during the third year, 8/12/2015) was from steel construction material being unloaded by forklift from a street-side truck. Some steel material was dropped about 1 meter from monitoring site CPT and registered 105 dB re 20 μ Pa. The loudest sound recorded onsite during 2015-16 pupping season was from a wheel barrow tire which exploded near the street and was recorded at CPT about 10 meters away (87.1 dB re 20 μ Pa). Sound measurement at all seven locations often included the public and frequently construction sounds could not be separated from other sounds including other equipment, waves crashing (Figure 14), people screaming, street noise, aircraft, birds, sea lions, and dogs. We did however estimate distances to sound sources when possible (Table 2). Harbor seals continue to haul out in large numbers and have their pups in record numbers at CP despite all the disturbances including construction.

Literature Cited

- Hanan, D. A. 2015. Final Report. Incidental Harassment Authorization Issued June 28, 2014 – June 27, 2015 to the City of San Diego for La Jolla California Children's Pool Construction and Harbor Seal Monitoring. National Marine Fisheries Service. Office of protected Resources 1315 East-West Hwy Silver Spring, MD 20910. September 28, 2015. 36 pages.
- Hanan, D. A. and Z. D. Hanan. 2014. Final Report. Incidental Harassment Authorization Issued June 28, 2013 – June 27, 2014 to the City of San Diego for La Jolla California Children's Pool Construction and Harbor Seal Monitoring. NMFS. Office of protected Resources 1315 East-West Hwy Silver Spring, MD 20910. April 15, 2014. 35 pages.
- Hanan & Associates. 2011. Biological Report: Update Regarding Pinnipeds and the California Least Tern at Children's Pool, La Jolla, California, and Lifeguard Tower Reconstruction. Unpublished report submitted to the City of San Diego. March 2011. 34 pages.
- Hanan, D. A., 2004. Biological letter report and recommendations for construction. Regarding pinniped surveys at Children's Pool, La Jolla, California. Unpublished report submitted to the City of San Diego. May 2004. 21 pages.
- Hanan, D. A., 1996. Dynamics of abundance and distribution in the Pacific harbor seal, *Phoca vitulina richardsi*, on the coast of California. Doctor of Philosophy dissertation. University of California, Los Angeles. 173 pages.
- Linder, T.A. 2011. Estimating population size of Pacific harbor seals (*Phoca vitulina richardsi*) at Children's Pool Beach in La Jolla, California, using photo-identification. M.S. Thesis, University Of California, San Diego. 47 pages.
- Southall, B. L., A. E. Bowles, W. T. Ellison, J. J. Finneran, R. L. Gentry, C. R. Greene, D. Kastak, D.R. Ketten, J.H. Miller, P.E. Nachtigall, P. L. Tyack, 2007. Overview. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. *Aquatic mammals*, 33(4), 411-414.
- Yochem, P. K., and B. S. Stewart, 1998. Behavioral ecology and demography of seal and sea lions at the Seal Rock Marine Mammal Reserve. Hubbs-Sea World Technical Report 98-282.



Figure 11. Children's Pool construction site and measurements away from construction site.

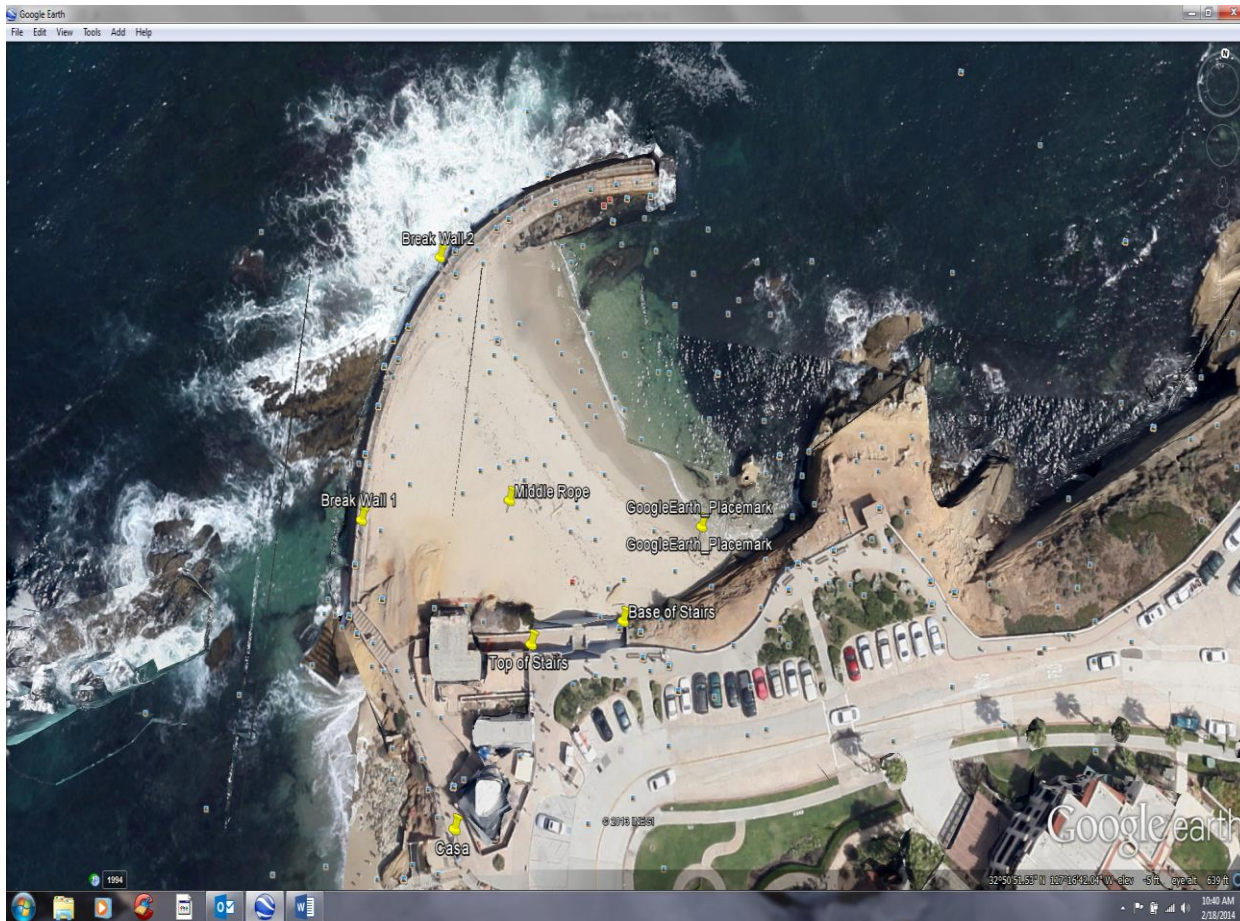


Figure 12. Location of monitoring stations (Top of Stairs, Bottom of Stairs, Middle Rope, Casa, Break Wall 1, and Break Wall 2) at Children's Pool, La Jolla, CA.



Figure 13. Monitoring location: Casa early and late 2015 (above Casa Beach and next to construction site).



Figure 14. View from monitoring location: Break Wall 2. Note Break Wall 1 located this side of second man on wall (tan shirt) and note yellow rope barrier on beach at white sign with four people standing on beach.



Figure 15. Moving visual/acoustic barriers to lower level of construction site after removal of old building.

Appendix I. 2014 Monitoring plan for the La Jolla Children's Pool Lifeguard Station demolition and construction:

Monitoring of the Lifeguard Station remodel will be completed by Hanan & Associates, Inc. (H&A) in accordance with Incidental Harassment Authorization (IHA). NOAA Fisheries approved Protected Species Observers (PSO) will be provided by H&A during periods in which the in-air noise-generating activities are scheduled to exceed 90 dB re 20 μ Pa. If additional periods are deemed necessary by the contracting/engineering company (Stronghold Engineering), H&A must be made aware 24 hours prior to start of that activity in order to provide an onsite PSO. The PSO will complete an initial scan of the action area 30 minutes prior to construction activity, continuously during the activity, and at least 30 minutes after cessation of the in-air noise-generating activity. When inclement weather limits visibility, the PSO will perform scans to the extent that weather permits. If weather precludes the PSO from performing the counts/sound monitoring on the Sea Wall, locations: C4, S5 and S6, the PSO will perform the counts and sound monitoring as close as possible. If waves are crashing over the sea wall and the safety of the PSO and/or equipment is in question; the PSO will perform the counts and sound measurements from site "IW" or further north along the bluff as needed to accurately perform those required counts.

The PSO will be required to complete visual counts of all marine mammals in four locations on an hourly basis, as well as, audio monitoring in 7 locations during this same hourly schedule (see Monitoring Diagrams for locations, attached). Audio monitoring will be completed using a handheld digital sound level measuring device Extech HD600 and estimate distance to sound source. The PSO will complete a "Data Sheet" (DS, attached) for each day and during each step of the monitoring process as follows:

Upon arrival at the site, the PSO will complete the Consultant Site Visit Record, as required by the City, and then record the time, Beaufort sea state, weather conditions including cloud cover, wind velocity and direction, horizontal visibility, and number of public visitors present by location at Children's Pool. The air and water temperature and tide height will be obtained from the NOAA website or from lifeguard station signs. When obtained at the site this will be noted on the DS, however; when these data are not available, the information will be obtained from the NOAA website after the cessation of work and documented at a later point. The time of in-air noise-generating construction activity commencement will also be recorded.

Initially the PSO will take audio measurements at site "S1", as close to the middle of the beach and rope line as possible without impacting the seals, where the PSO will monitor the sound level for two minutes and record the "maximum" decibel level monitored on the DS.

The PSO will then proceed to site "S2", east side of beach on rope line, where the PSO will again monitor the sound level for two minutes and record the "maximum" decibel level monitored on the DS.

The PSO will then proceed to site "S3", at the top of the stairs as close to the construction site as safely possible, where the PSO will again monitor the sound level for two minutes and record the "maximum" decibel level monitored on the DS.

Adjacent to site “S3,” at site “C1” the PSO will perform a visual count, utilizing binoculars, of all seals hauled out on “Seal Rock” and record the following on the DS: a) total count, b) a count of juveniles (yearling and pups) and where possible a count of males and females to estimate sex ratio.

The PSO will then proceed to site “C2” where a count of all seals hauled out on the Children’s Pool beach and rocks within the cove. Again the PSO will record the following on the DS: a) total count, b) a count of juveniles (yearling and pups) and where possible a count of males and females. For this count, the PSO will also count and record on the DS: the number of public visitors on the Sea Wall, the beach, and at the top of the stairs.

The PSO will now move to the next position “S4”, overlooking Casa Beach, where the PSO will again monitor the sound level for two minutes and record the “maximum” decibel level monitored on the DS.

Adjacent to site “S4,” at site “C3” the PSO will perform a visual count of all seals hauled out on Casa Beach and record the following on the DS: a) total count, b) a count of juveniles (yearling and pups) and where possible a count of males and females to estimate sex ratio.

The PSO will now move to the next position “S6”, on the Sea Wall near birds nest N5, where the PSO will again monitor the sound level for two minutes and record the “maximum” decibel level monitored on the DS.

The PSO will finish the fourth and final count from site “C4”, where all seals hauled out on the reef area west of the Sea Wall will be counted. The PSO will also take a sound measurement on this beach. Again the PSO will record the following on the DS: a) two-minute sound measurement, b) total count, c) a count of juveniles (yearling and pups) and where possible a count of males and females to estimate sex ratio.

Continually during the activity generating the in-air noise the PSO will observe the seals and note on the DS any behavioral responses as well as the assumed cause of this response, whether it from visual or acoustic cues: a) construction and equipment type or b) type of public or other non-construction stimuli. During these events, and if possible, the PSO will take video and/or photographs to document these responses.

Lastly, active seagull nests were observed near and within the construction site during pre-construction surveys, the PSO will monitor any activity within these nests and denote any changes on the DS.

Throughout the day, the PSO will continue to monitor and record any changes in the Beaufort sea state, weather conditions including cloud cover, wind velocity and direction, horizontal visibility, and number of public visitors present by location at Children’s Pool. The time of in-air noise-generating activity completion will also be recorded at the end of the day or activity and the PSO will document the departure time from the site.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by this Authorization, such as an injury (Level A harassment), serious injury or mortality, the City of San Diego shall immediately cease the specified activities and immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Howard.Goldstein@noaa.gov and the West Coast Regional Stranding Coordinator (Justin.Greenman@noaa.gov). The report must include the following information:

(a) Time, date, and location (latitude/longitude) of the incident; the type of activity involved; description of the circumstances during and leading up to the incident; status of all sound source use in the 24 hours preceding the incident; water depth; environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility); description of marine mammal observations in the 24 hours preceding the incident; species identification or description of the animal(s) involved; the fate of the animal(s); and photographs or video footage of the animal (if equipment is available).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with the City of San Diego to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The City of San Diego may not resume their activities until notified by NMFS via letter or email, or via telephone. Throughout the project the PSO will continually monitor for any dead stranded cetaceans in the event that this should occur the incident should be reported to NMFS Southwest Fisheries Science Center at 858-546-7162. Upon the detection of any stranded animals by the PSO or other project staff on site, San Diego Sea World's stranded animal hotline will be contacted, at 1-800-54-7325.

Appendix II. Daily Monitoring Sheet to be maintained while observing construction, recording sound, and visitors.

Arrival Time:						Date:	Observer:								Start of Const:						
Environmental						Const Equip	Seal & People Counts (CP Total/Juvenile)							Decibel (Max)/Dist to Source							
Bft	Tide	Wthr/blr	Wind	Vis	Time		S. Rk	CP	Wall	Rope	Top	Casa	Reef	CP M	CP B	CP T	Casa	Wall G	Wall S		
						7:00															
						7:30															
						8:00															
						8:30															
						9:00															
						9:30															
						10:00															
						10:30															
						11:00															
						11:30															
						12:00															

12:30

13:00

13:30

14:00

14:30

15:00

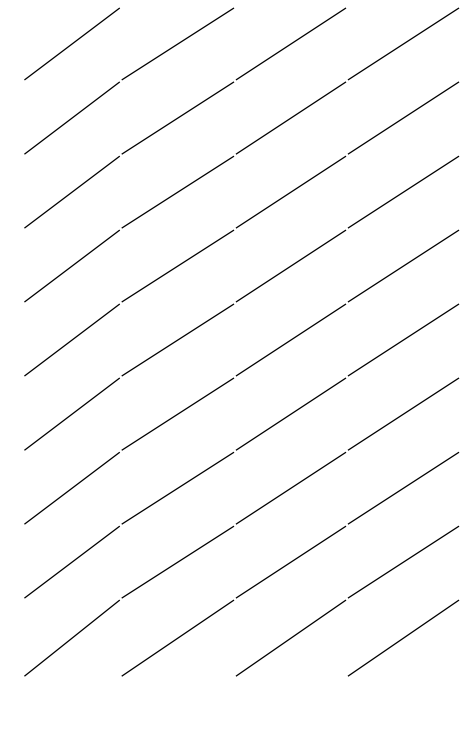
15:30

4:00

4:30

Departure Time:

End of Const:



Appendix III. Daily Observation Sheet for recording all observed harassments of marine mammals at Children’s Pool

Date:		Observations			
Time	# Animals	# PPL@W	#PPL@R	Response Type (alert/flush)	Potential Disturbance
7:00 AM					
7:30 AM					
8:00 AM					
8:30 AM					
9:00 AM					
9:30 AM					
10:00 AM					
10:30 AM					
11:00 AM					
11:30 AM					
12:00 PM					

12:30 PM					
1:00 PM					
1:30 PM					
2:00 PM					
2:30 PM					
3:00 PM					
3:30 PM					
4:00 PM					